



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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# Work Order ID 125175

\*125175\*

Page 2

Tuesday, October 07, 2014 10:37:17 AM

Item ID: D4978-3 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Tube  
 Start Date: 10/10/14 Start Qty: 1.00 \*1\* Cust Item ID:  
 Required Date: 10/15/14 Req'd Qty: 1.00 \*1\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC8- Inspect parts - second check	0.00							DAS 40 9-89
*120*						6	Ø		14/10/14
QC	Memo	0.00							
Quality Control									
130	Identify as per dwg & Stock Location: <del>St 129</del> 130	0.00							
*130*						6			DAS 06 9-89
Packaging	Memo	0.00							OCT 14 2014
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							
*140*									14/10/15
QC	Memo	0.00							
Quality Control									

mf, 9-10-13

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



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Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport.									
Unapproved									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence	<input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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# Picklist Print

Tuesday, October 07, 2014 10:37:16 AM

Page 1

Work Order ID: 125175

**\*125175\***

Parent Item: D4978-3

**\*D4978-3\***

Parent Item Name: Tube

Start Date: 10/10/14

Required Date: 10/15/14

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 13.11.18 NEW ISSUE DD VERF:JLM IPP  
REV:B 13.12.04 AS PER DWG REV.A DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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M304R0.375

Purchased

No

f

44.1980

1

**\*M304R0 375\***

304 ROUND BAR 0.375

**\*\***

*W.P.*  
*14/10/10*

Location

Loc Qty

Loc Code

MAT029

44.198

M127015

3.427

M127864

0.694

M129666

5.68

M129845

34.397

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
~~\_\_\_\_\_~~

*0,996*

DQA: \_\_\_\_\_ Date: \_\_\_\_\_



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Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

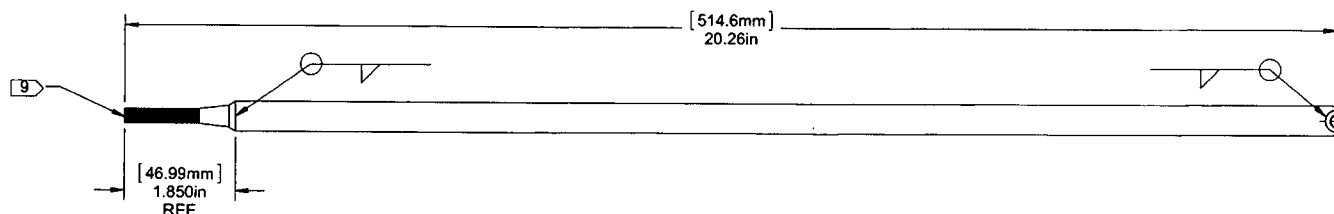
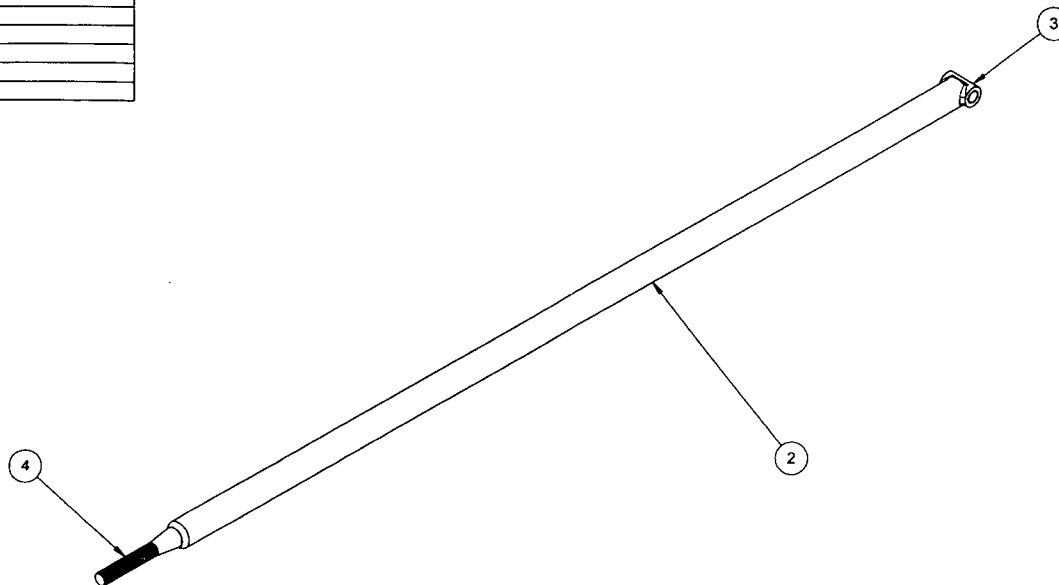
Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
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ITEM	QTY -041	P/N	DESCRIPTION
1	X	D4978-041	STRUT ASSY
2	1	D4978-1	TUBE
3	1	D4978-3	TUBE
4	1	D4978-5	STRUT THREAD



### D4978-041 STRUT ASSY

#### NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX, AS PER QSI 005.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4978-041", REVISION, BATCH NUMBER AND DATE OF MANUFACTURE, USING AN X-TENSION STAMP, PER QSI 044 METHOD 6.2
- 7) WEIGHT: 0.53 lbs (0.25 kgs)
- 8) WELD PER DART QSI 004
- 9) MASK THREAD PRIOR TO FINISH

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 125135 ML5

14-10-08

**RELEASED**  
2014-06-11

D	REVISE NOTE 6) (ZN A8-1)	AK	14.06.05
C	REVISED D4978-5 (ZN C3-4)	AK	14.05.13
B	REVISED LENGTH OF D4978-1 (ZN C4-2) AND D4978-3 (ZN C4-3)	AK	14.05.07
A	NEW ISSUE	DC	13.11.13
REV.	DESCRIPTION	BY	DATE
DESIGN	DC	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	<b>D4978</b>	SHEET 1 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	<b>STRUT ASSY</b>	NTS
DATE	14.06.05	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

APPROVED



8 7 6 5 4 3 2 1

D

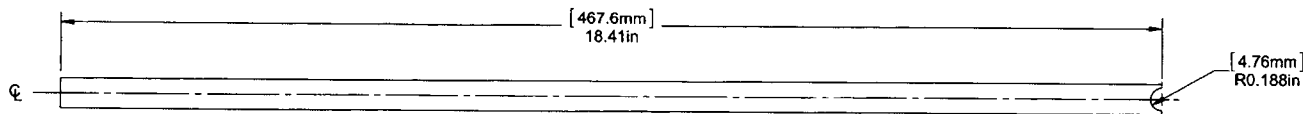
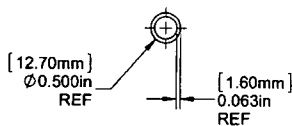
C

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B



**D4978-1 TUBE**

**RELEASED**  
2014-06-11

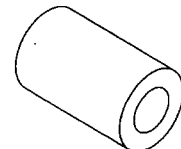
**NOTES:**

- 1) MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING, Ø0.500 X 0.063 WALL  
PER ASTM A213 OR ASME SA213 OR ASTM A269  
REF DART SPEC M304TR0.500W.063
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.47 lbs (0.24 kgs)

APPROVED

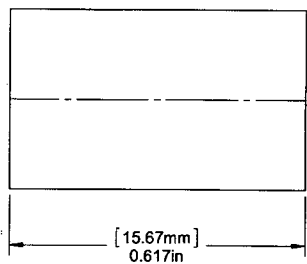
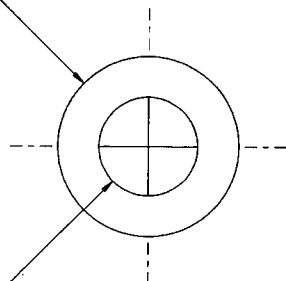
DESIGN	DC	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	<b>D4978</b>	SHEET 2 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	<b>STRUT ASSY</b>	NTS
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8 7 6 5 4 3 2 1



[9.53mm]  
Ø0.375in

[5.21mm]  
Ø0.205in



[15.67mm]  
0.617in

**D4978-3 TUBE**

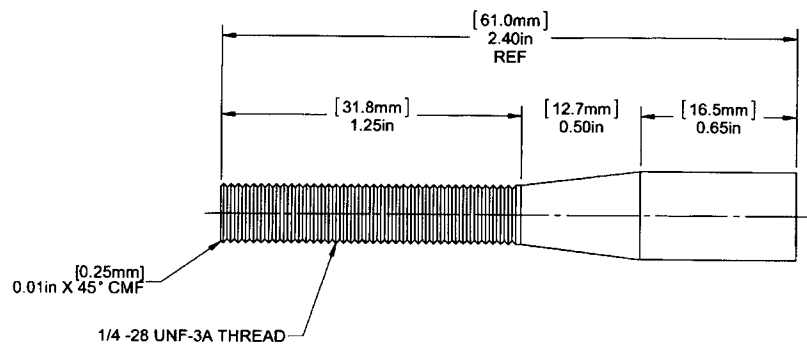
**RELEASED**  
2014-06-11

**NOTES:**

- 1) MATERIAL: AISI 304/316 SS ROUND BAR  
PER ASTM A276  
REF DART SPEC M304R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.01 lbs (0.005 kgs)

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DESIGN	DC	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	HS	DRAWING NO.	REV. D
MFG. APPR.	JLM	<b>D4978</b>	SHEET 3 OF 4
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	<b>STRUT ASSY</b>	NTS
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9.27mm<sup>+0.13</sup>  
0.00  
Ø0.365in<sup>+0.005</sup>  
-0.000

# **D4978-5 STRUT THREAD**

## **NOTES:**

- 1) MATERIAL: AISI 304/316 SS ROUND BAR  
PER ASTM A276  
REF DART SPEC M304R
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.04 lbs (0.02 kgs)

APPROVED	DESIGN	DC	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
	DRAWN	RF		
	CHECKED	HS	DRAWING NO.	REV. D
	MFG. APPR.	JLM	<b>D4978</b>	SHEET 4 OF 4
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	<b>STRUT ASSY</b>	NTS
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2014-06-11